

NEW DATA ON THE OCCURRENCE OF SOME RARE AND ENDANGERED GROUND BEETLES (COLEOPTERA: CARABIDAE) IN SOUTH-WESTERN POLAND

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ABSTRACT: The authors present new localities of eleven rare and endangered species of ground beetles Carabidae, which have been found in the south-western part of Poland (Wielkopolsko-Kujawska Lowland, Lower Silesia, Trzebnickie Hills, Upper Silesia, Eastern Sudetes). These species are: *Carabus convexus* Fabr., *C. intricatus* L., *C. problematicus* Herbst, *C. scheidleri* Panz., *Omophron limbatum* (Fabr.), *Blethisa multipunctata* (L.), *Broscus cephalotes* (L.), *Diachromus germanus* (L.), *Colliuris melanura* (L.), *Brachinus crepitans* (L.), *B. explodens* Duft.

KEY WORDS: new record, faunistics, protected species, SW Poland, Silesia.

Among more than 500 species of ground beetles Carabidae recorded in Poland so far (Burakowski et al. 1973, 1974; Aleksandrowicz 2004; Stachowiak 2008), exactly 101 species were included in the „Red List of Threatened Animals in Poland” (Pawłowski et al. 2002). The reason for assigning so many species for different categories of threat is not only progressing degradation of their habitats but also scarce and mostly outdated information concerning their occurrence in the country. Therefore, it is important to publish all the records, especially on rare species both for the country and region, so it would be possible to update the national red list and also update or create a new regional red lists in the future.

The authors present new data on 11 rare and endangered species of ground beetles Carabidae which localities have been recorded in the years 2000–2012 in south-western Poland. All specimens were collected and identified by the authors. The keys by Hürka (1996) and Freude et. al. (1976) were used for identification of the beetles. The collected material with the exception of species protected by law in Poland (Rozporządzenie... 2011) was deposited in the collection of Opole Silesia Museum. The systematic nomenclature was presented according to Pawłowski et al. (2002). The list of species with details on their records and information on their distribution, ecology and zoology is given below. Symbols and abbreviations used in the text:

* – species protected by law, IUCN – „The IUCN Red List of Threatened Species” (2012), PL – „Red List of Threatened Animals in Poland” (Pawłowski et al. 2002), SL – „Red List of Upper Silesian Beetles” (Kubisz et al. 1998), US – Upper Silesia, OP – Opole Province, EX – extinct species, E – endangered, VU/V – vulnerable, NT – near threatened, LC – least concern, R – rare, DD – data deficient, I – undefined status.

* *Carabus convexus* Fabricius, 1775

PL (NT)

Upper Silesia: Góra św. Anny (BA99, 50°26'59"N, 18°10'26"E), 5 IV 2007 – 1♂, observed at night in the light of the roadside lantern; Góra św. Anny (BA99, 50°27'8"N, 18°9'11"E), 8 II 2011 – 1♂, 1♀, hibernating under a sod of mosses in mixed forest in the company of 1♂ *Carabus nemoralis* O.F. Müll.

Eurosiberian species (Hůrka 1996), recorded in many localities in Poland spread almost across the whole country (Burakowski et al. 1973). The species inhabits various environments, especially well-preserved with a high level of naturalness. It mainly occurs in warm and old deciduous or mixed forests (Sienkiewicz et al. 2009).

* *Carabus intricatus* Linnaeus, 1761

IUCN (NT), PL (LC), SL (US – R, OP – R)

Wielkopolsko-Kujawska Lowland: Skoroszów (XS59, 51°25'18"N, 17°14'17"E), 21 X 2001 – 5♂♂, 4♀♀, in rotten trunks of spruce *Picea* sp.

Upper Silesia: „Lesisko” Nature Reserve (BA99, 50°27'23"N, 18°08'17"E), 24 II 2007 – 2♀♀, hibernating in rotten trunk of beech *Fagus sylvatica* L.; „Grafik” Nature Reserve (CA09, 50°26'32"N, 18°13'21"E), 9 III 2008 – 1♂, under the bark of rotten trunk of beech; „Boże Oko” Nature Reserve (CA09, 50°26'50"N, 18°10'26"E), 7 II 2007 – 2♂♂, 1♀, hibernating in rotten trunk of beech.

Eastern Sudetes: Pokrzywna, „Cicha Dolna” Nature Reserve (XR77, 50°16'36"N, 17°27'02"E), 14 X 2009 – 1♂, 1♀, under the bark of rotten trunk of beech; Głuchołazy, „Las Bukowy” Nature Reserve (XR67, 50°18'15"N, 17°22'27"E), 2 V 2010 – 1♀, found dead on a forest path.

European species, which occurs in west, central and south-eastern Europe to northern part of the Balkans (Hůrka 1996). In Poland it is known from almost all over the country (Burakowski et al. 1973). The species inhabits mainly deciduous forests especially rich in rotting wood in which it hibernates (Sienkiewicz 2007).

* *Carabus problematicus* Herbst, 1786

PL (DD), SL (US – R, OP – R)

Wielkopolsko-Kujawska Lowland: Skoroszów (XS59, 51°25'18"N, 17°14'17"E), 21 X 2001 – 1 ♀, in rotten trunk of spruce.

Upper Silesia: Olesno (CB24, 50°54'32"N, 18°26'59"E), 6 X 2001 – 1 ♀, hibernating in rotten trunk in the pine forest.

European species, widespread in south-west, west, central and northern Europe to the Arctic Circle (Burakowski et al. 1973; Hůrka 1996). This is a xerophilous species that inhabits opened and poorly-covered areas, even in bright pine forests (Burakowski et al. 1973).

* *Carabus scheidleri* Panzer, 1799

PL (LC), SL (US – R, OP – EX)

Lower Silesia: Góreczno (YR07, 50°18'56"N, 17°52'25"E), 15 VII 2010 – 1 ♀, on the field path; Wrocław-Świniary (XS37, 51°11'13"N, 16°59'55"E), 31 III 2007 – 1 ♀, under the clod of soil in a field; Walce (BA88, 50°23'03"N, 18°00'33"E), 30 VII 2011 – 1 ♂, in the field of barley *Hordeum vulgare* L.

European species (Watała 1985) with two subspecies present in Poland – *C. s. preysleri* Duftschmid, 1812 and *C. s. excellens* Fabricius, 1801. The first one was reported in Lower and Upper Silesia, Trzebnickie Hills, Krakowsko-Wieluńska Upland, Western and Eastern Sudetes, Western and Eastern Beskids, Bieszczady Mountains, Pieniny Mountains and Tatra Mountains (Burakowski et al. 1973; Watała 1985; Holly 2012). The second subspecies was recorded in Sandomierska Lowland, Eastern Beskid and Bieszczady Mountains (Burakowski et al. 1973; Sienkiewicz 2007; Holly 2012). Both subspecies coexist in south-eastern Poland (Watała 1985). Due to their range limits in the country the data presented in this paper probably relate to *C. s. preysleri*. The observed specimens were identified only to the level of species.

According to the literature *C. scheidleri* inhabits various types of environments such as: fields, meadows, gardens, parks, hedges, watersides and many types of forests (Andorkó and Kádár 2009). However current data indicate that the species occurs in the Opole Province.

Omophron limbatum (Fabricius, 1776)

PL (NT), SL (US – V, OP – EX)

Lower Silesia: Kolonia Pierwsza ad Zakrzów (BA99, 50°28'01"N, 18°04'55"E), 22 IV 2007 – 2 exx., under a stone in a drained pond; Malina ad Opole (YS11, 50°37'39"N, 17°59'15"E), 28 IV 2011 – 1 ex., on the margin of the reservoir in old gravel pit; Dąbrówka Łubniańska, „Studzionka” (BB83, 50°48'11"N, 18°00'01"E), 14 VII 2011 – 1 ex., on the shoreline of a small body of water in the pine forest; Domanice, Mietkowski Dam Reservoir (XS14, 50°57'03"N, 16°35'43"E), 1 IV 2007 – 4 exx., on the sandy shore of the reservoir.

Trzebnickie Hills: Łuczyna (XS58; 51°17'10"N, 17°17'35"E), 27 V 2012 – 3 exx., on the shore of the reservoir in the sand pit; Poniatowice (XS77; 51°12'55"N, 17°32'36"E), 09 VI 2012 – 2 exx., on the shore of the reservoir in the sand pit.

Upper Silesia: Grabówka (CA07, 50°16'39"N, 18°16'29"E), 13 VII 2011 – 1 ex., on the shore of the reservoir situated in the sand pit.; Januszkowice (BA98, 50°23'47"N, 18°08'24"E), 20 IV 2011 – 1 ex., on the margin of fish pond.; Kędzierzyn – Koźle (BA97, 51°19'53"N, 18°10'11"E), 19 VII 2011 – 4 exx., on the shore of oxbow lake of the Oder river; Pludry (CB21, 50°39'19"N, 18°27'39"E), 2 V 2011 – 6 exx., on the bank of Smolina river; Zawadzkie (CB21, 50°37'179"N, 18°27'29"E), 6 IX 2012 – 5 exx., on the bank of Mała Panew river.

This ground beetle is distributed in the major part of Europe, excluding Finland, Norway and most of Sweden, its range spreads also to North Africa and Asia (Kirichenko and Babko 2009; Valainis 2009). In Poland it occurs almost throughout the country (Sienkiewicz et al. 2007) where it inhabits sandy and slightly overgrown shores of various types of water bodies such as rivers, ponds and lakes (Burakowski et al. 1973; Sienkiewicz et al. 2007), also oxbows and reservoirs in gravel and sand pits (data provided by the authors). The species is threatened with extinction in Poland and in many European countries because of the transformation of its habitats. The studies on *O. limbatum* conducted in Ukraine by Kirichenko and Babko (2009) proved that the vegetation overgrowth, siltation of alluvial river bars, the intensity of recreational activities and trampling by the livestock, as well as over-regulation and contamination of the rivers lead to significant changes of the natural habitats of this species and as a consequence, to the decrease of its population. In the light of the new data on the occurrence of the species in the Opole Province, which has been presented in this paper, we recommend to reduce its category of threat in the future updates of the regional Red List of beetles.

Blethisa multipunctata (Linnaeus, 1758)

PL (VU), SL (US – V, OP – EX)

Lower Silesia: Malina ad Opole (YS11, 50°37'56"N, 17°58'42"E), 17 V 2011 – 1 ex., among the vegetation at the shoreline of a small body of water.

Holarctic species occurring in central and northern Europe, Siberia and North America (Burakowski et al. 1973). It occurs in the whole territory of Poland (Anonim 2004) but is rarely recorded, more often in northern areas (Burakowski et al. 1973). The new record of the species in the Opole Province is going to change its risk category for the region. This ground beetle is a typical ripicolous species inhabiting shores of stagnant or slow-flowing water bodies (Burakowski et al. 1973; Anonim 2004). It was recorded by Pawłowski (1966) as well as Gawroński and Oleksa (2007) on the coasts of the Baltic Sea.

Broscus cephalotes (Linnaeus, 1758)

PL (DD), SL (US – I, OP – E)

Upper Silesia: Olesno, Konopnicka Street (CB 13, 50°52'32"N, 18°25'34"E), 6 VIII 2000 – 1 ex., caught in a pitfall trap in the garden; 27 VII 2001 – 1 ex., found in the basement of an old house; 15 VIII 2009 – 1 ex., under a stone in the garden; 24 VII 2010 – 1 ex., caught in a pitfall trap in the garden.

Eurosiberian species, widespread for entire Europe except the far south and north, it also occurs in Caucasus (Burakowski et al. 1973; Luff 1998; Gawroński and Oleksa 2007). This beetle inhabits sunny and slightly moist opened areas with sandy or clay soil, it also occurs in transformed environments such as agroecosystems (Burakowski et al. 1973; Sienkiewicz et al. 2009).

Diachromus germanus (Linnaeus, 1758)

PL (NT)

Lower Silesia: Ślezański Landscape Park (XS13, 50°50'26"N, 16°41'13"E), 28 III 2003 – 1 ex., under a stone on the edge of the forest.

European species occurring from the coast of Atlantic to the western coastal region of Asia and from the coasts of North and Baltic Sea to the Caucasus (Stachowiak 2009). This species was frequently reported from the whole country, but most of the information came from the end of the nineteenth and the first half of the twentieth century (Burakowski et al. 1974). In the last half-century it was reported only a few times on the basis of individual specimens (Stachowiak 2009). It inhabits mainly dry and warm places located at the edges of forests or scrubs and on glades (Burakowski et al. 1974), sometimes near the water bodies (Jaskuła and Ruta 2003).

Colliuris melanura (Linnaeus, 1767)

PL (NT), SL (US – V, OP – V)

Lower Silesia: Kolonia Pierwsza ad Zakrzów (BA99, 50°28'13"N, 18°04'43"E), 26 IV 2011 – 2 exx., caught by entomological scoop among the vegetation growing on the margin of the pond; Zabrodzie ad Wrocław (XS35, 51°03'46"N, 16°57'35"E), 30 IV 2002 – 1 ex., collected from the common reed *Phragmites australis* (Cav.) Trin & Steud, growing along a watercourse.

Upper Silesia: Osiecko (CB13), 22 V 2011 – 1 ex., caught on aquatic vegetation at the edge of clay pit; Pludry (CB21, 50°39'25"N, 18°28'02"E), 2 V 2011 – 3 exx., found in rushes on the drained forest pond.

Eurosyberian species (Burakowski et al. 1974), recorded in Poland on many lands, but usually sporadically (Jaskuła and Grabowski 2001). It lives on the shores of eutrophic water bodies, often in reeds (Burakowski et al. 1974).

Brachinus crepitans (Linnaeus, 1758)

PL (NT)

Lower Silesia: Wrocław-Świniary (XS37, 51°10'58"N, 16°59'17"E), 31 III 2008 – 7 exx., collected together with *Brachinus explodens* Duftschmid, 1812, under a piece of wooden board lying on a wasteland.

Widely distributed species occurring in the areas from northern Africa to the central provinces of Sweden, and from the east to west Asia and Altai (Burakowski et al. 1974). It is a rare ground beetle in Poland, most localities of its occurrence are known from historical times (Jaskuła and Grabowski 2001). The species prefers dry and opened areas with clay or calcareous soils, overgrown with grass and shrubs (Burakowski et al. 1974).

Brachinus explodens Duftschmid, 1812

PL (NT)

Lower Silesia: Wrocław-Świniary (XS37, 51°10'58"N, 16°59'17"E), 31 III 2008 – 2 exx., collected together with *Brachinus crepitans* under a piece of wooden board lying on a wasteland; Wrocław-Widawa (XS47, 50°10'54"N, 17°00'22"E), 7 IV 2002 – 8 exx., under the clods of soil on a wasteland.

The species occurs in southern and central Europe, it was also recorded in Siberia and western Asia (Burakowski et al. 1974). The northern border of its range in Europe runs through Poland (Wojas 1998). It inhabits opened areas with low vegetation and dry, calcareous soils, as well as *B. crepitans* (Burakowski et al. 1974).

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